

Abstract

Applications of modern Information Technology (IT), along with wireless sensor network (WSN), are rapidly growing areas of research in many sectors. There is presently considerable research interest in using wireless and mobile technologies for patient health monitoring, particularly in hospitals and nursing. This stems from the fact that the monitoring of patients' physiological parameters can be a very difficult task. This thesis presents a unique approach where policy based intelligent agents are used to monitor the health of patients in hospitals. These agents will be responsible for routing patient information arising from wireless body sensors for processing and communicating the same through a hospital mesh network on to traditional network/internet. This agent technique incidentally reduces the communication cost, especially over low bandwidth links, by moving the processing function to the place where data is available rather than bringing the data to a central processor. We have considered, just as an example, the physiological parameter of body temperature monitoring for our policy based agent implementation. Our research work, reported in the thesis, did not concentrate on the hardware development of sensors but has instead utilized the existing sensors available as front end devices for our IT based system development for health applications. The implementation of the technique and the subsequent simulation trials have been carried out using Java Sun Spot sensors and JADE-LEAP agent development kit for mobile devices. The results of the research study are presented as screen

shots in the thesis.

Keywords: Wireless Sensor Networks, JADE-LEAP, Intelligent Agents, Mesh Networks, Java SunSpot Sensors, Patient Care, Health Monitoring